Fort Monroe Consumer Confidence Report on the Quality of Tap Water for 2006

This annual water quality report or Consumer Confidence Report is prepared and distributed by Fort Monroe as required by the Safe Drinking Water Act. This report explains where your water comes from, what analytical testing shows about it, and other things you should know about your drinking water. Fort Monroe's goal is to provide you with a safe and dependable supply of drinking water, and we want you to understand the efforts we make to protect your water supply. Drinking water quality must meet state and federal requirements administered by the Virginia Department of Health (VDH). The water produced by Newport News Waterworks is treated and testing by state-of-the-art equipment and techniques and meets or exceeds state and federal standards for water-quality.

General Information

Sources of drinking water (both tap water and bottled water) include rivers, lakes, streams, ponds, reservoirs, springs and wells. As water travels over the surface of the land or through the ground, it dissolves naturally occurring minerals and radioactive material and can pick up substances resulting from the presence of animals or from human activity. Contaminants that may be present in source water include:

- Microbial (such as viruses and bacteria), which may come from sewage treatment plants, septic systems, agricultural livestock operations and wildlife.
- Inorganic (such as salts and metals), which can be naturally-occurring or result from urban storm water runoff, industrial or domestic wastewater discharges, oil and gas production, mining or farming.
- Pesticides and herbicides, which may come from a variety of sources such as agriculture, urban storm water runoff and residential uses.
- Organic chemical (including synthetic and volatile organics), which are by-products of industrial processes and petroleum production, and can also come from gas stations, urban storm water runoff and septic systems.
- Radioactive, which can be naturally occurring or be the result of oil and gas production and mining activities.

To ensure that tap water is safe to drink, the Environmental Protection Agency (EPA) prescribes regulations, which limit the amount of certain contaminants in water provided by public water systems. Food and Drug Administration (FDA) regulations establish limits for contaminants in bottled water, which must provide the same protection for public health. Drinking water, including bottled water, may reasonably be expected to contain at least small amounts of some contaminants. The presence of contaminants does not necessarily indicate that the water poses a health risk. More information about contaminants and potential health effects can be obtained by calling the EPA Safe Drinking Water Hotline (800-426-4791).

Water Sources and Treatment

During 2006, the drinking water at Fort Monroe was purchased from Newport News Waterworks (NNWW). Newport News Waterworks water comes from surface water; rain, streams and as withdrawals from the Chickahominy River. This water is stored, prior to treatment, in five reservoirs owned and operated by NNWW. Groundwater provides a secondary source of water. Brackish water is pumped from deep wells in the Lee Hall section of Newport News. The surface water and groundwater are treated separately and blended together before distribution.

Newport News Waterworks operates two water treatment plants; Lee Hall Water Treatment Plant and Harwood's Mill Water Treatment Plant. First, the surface water is pumped to the treatment plants. The water passes through screens and then aluminum sulfate (alum) and polymer are added. These chemicals cause tiny particles in the water to cling together (*coagulation*), making the particles easier to remove. After the water is clarified, ozone (*disinfection*) is added to kill microorganisms such as bacteria and viruses. The water is then sent through filters to remove any remaining particles (*filtration*). Lime is added to adjust the pH, fluoride is added to prevent tooth decay in children, and zinc orthophosphate is added to control corrosion inside the pipe system. Finally, chloramines, the secondary disinfectant, are added to maintain disinfection through the pipe system to your home or workplace. The brackish groundwater is pumped to a desalination plant located at the Lee Hall facility. Using a process called *reverse osmosis*, water is forced by high pressure through membranes that can remove the salt and most other contaminants to produce very high-quality water. The water is blended with treated surface water prior to distribution.

For more information concerning Newport News drinking water quality, please contact Newport News Waterworks at 757-926-1000 or visit their website at www.nngov.com/wwdept.

Surface Water Source Assessment

The Hampton Roads Planning District Commission conducted a Source Water Assessment of NNWW in 2001-02. Newport News Waterworks surface water sources were rated as relatively high in susceptibility, while their deep groundwater wells were rated as low in susceptibility to contamination using the criteria developed by the state in its approved Source Water Assessment Program. The assessment report includes maps showing the source water assessment area, an inventory of known land use activities, a susceptibility explanation chart, and definitions of key terms. The report is available by contacting NNWW, the VDH or the Hampton Roads Planning District Commission.

Water Quality Testing

All sources of drinking water contain some naturally occurring contaminants. Because water is the universal solvent, many materials are easily dissolved upon contact. At low levels, these contaminants generally are not harmful in our drinking water. Newport News Waterworks uses a system of multiple barriers that help prevent a range of contaminants that may be present in source water, such as bacteria and parasites, from reaching the treated water supply. This complex water treatment system includes watershed protection, filtration, and disinfection, which greatly reduces the risk of serious waterborne illness.

Contaminants in your drinking water are routinely monitored according to federal and state regulations. The following tables show the results of monitoring for the year 2006. Every regulated substance that was detected in water provided by NNWW, even in the minutest concentration, is listed in the following tables. The tables contain the name of each substance detected, the highest level allowed by regulation (MCL) the ideal goal for public health (MCGL), the amount detected, the typical sources of each substance and whether or not a set regulation was violated. Tests reveal that the water distributed to our customers is free of bacteria or parasites and meets all federal and state drinking water standards.

Newport News Waterworks Regulated Substances [1]

Substance (units)	MCLG	MCL	Max Conc.	Range	Violation	Sample Year	Typical Source
Inorganics							
Barium (ppm)	2	2	0.029	0.014-0.029	No	2006	Erosion of natural deposits
Fluoride (ppm)	4	4	1.55	<0.02-1.55	No	2006	Erosion of natural deposits; Water additive which promotes strong teeth
Nitrate (N, ppm)	10	10	0.10	<0.02-0.10	No	2006	Runoff from fertilizer use; Leaching from septic tanks, sewage; Erosion of natural deposits
Nitrite (N, ppm)	1	1	0.006	<0.001-0.006	No	2006	Erosion of natural deposits
Radioactives							
Alpha Emitters (pCi/L)	0	15	0.9	0.8-0.9	No	2001[2]	Erosion of natural deposits
Beta Emitters[3] (pCi/L)	0	50	3.6	3.0-3.6	No	2001[2]	Decay of natural and man-made deposits
Microbiological							
Turbidity[4] (NTU)	N/A	TT	0.57	0.02-0.57	No	2006	Soil runoff. At least 95% of monthly samples had turbidity of ≤0.30 NTU
Disinfection Byproducts and Precursors							
Total Organic Carbon (TOC) Removal[5,6]		TT	1.02	0.92-1.49	No	2006	Naturally present in the environment

Fort Monroe Distribution System Regulated Substances

Substance (units)	MCLG	MCL	Level Found	Range	Violation	Sample Year	Typical Source
Inorganics							
Copper (ppm)		AL= 1.3	0.60[7]	0.02 – 0.87[7]	No	2006[2]	Corrosion of household plumbing systems; Erosion of natural deposits
Lead (ppm)		AL= 0.015	0.002[7]	ND – 0.003[7]	No	2006[2]	Corrosion of household plumbing systems; erosion of natural deposits
Microbiological							
Chloramines[5] (ppm)	MRDLG 4	MRDL 4	1.29	0.0 – 3.1	No	2006	Additive used to control microbes
Disinfection Byproducts and Precursors							
Total Trihalomethanes[5] (ppb)	0	80	22.6	8 – 32	No	2006	By-product of drinking water chlorination
Haloacetic Acids[5] (ppb)	0	60	10.2	<1 – 19	No	2006	By-product of drinking water chlorination

Definitions of Key Terms used in the Tables

Action Level (AL) - the concentration of a contaminant which, if exceeded, triggers treatment or other requirements which a water system must follow.

Maximum Contaminant Level (MCL) - the highest level of a contaminant that is allowed in drinking water. MCLs are set as close to the MCLGs as feasible using the best available treatment technology.

Maximum Contaminant Level Goal (MCLG) - the level of a contaminant in drinking water below which there is no known or expected risk to health. MCLGs allow for a margin of safety.

Maximum Residual Disinfectant Level (MRDL) - the highest level of a residual contaminant allowed in drinking water. MRDLs are set as close to the MRDLGs as feasible, using the best available treatment technology.

Maximum Residual Disinfectant Level Goal (MRDLG) - the level of a residual contaminant in drinking water below which there is no known or expected risk to health.

Nephelometric Turbidity Unit (NTU) – nephelometric turbidity is a measure of the clarity of the water. Turbidity in excess of 5 NTUs is just noticeable to the average person.

Not Detected (ND) – laboratory analysis indicates that the substance analyzed is not present, or was not detected above the analytical method detection limit.

Parts per million (ppm) - one part per million corresponds to one minute in two years, or a single penny in $10,000.

Parts per billion (ppb) - one part per billion corresponds to one minute in 2,000 years, or a single penny in $10,000,000.

Picocuries per liter (pCi/L) - picocuries per liter is a measure of the radioactivity in water.

Secondary Maximum Contaminant Level (SMCL) – EPA recommended MCLs for Secondary Drinking Water Standards.

Treatment Technique (TT) - a required process intended to reduce the level of a contaminant in drinking water.

Footnotes:

(1) Although many more tests were performed, only the listed contaminants were detected. All substances detected were below the MCL.
(2) The state allows Fort Monroe and NNWW to monitor for some contaminants less than once per year because the concentrations of these contaminants do not change frequently. Some of the data, though accurate, is more than one year old.
(3) The MCL for beta particles is 4 mrem/yr (mrem = millirem; a measure of radiation absorbed by the body), but the EPA considers 50 pCi/L to be the level of concern.
(4) NNWW monitors turbidity, which is a measure of the cloudiness of water, because it indicates how well the filtration systems are working. 100% of samples met the turbidity limit.
(5) The detected level is the compliance level based on a running annual average. The range numbers are the results from individual sample locations.
(6) TOC removal is regulated based on the percentage of how much is removed in the treatment process divided by the target removal percentage set by the EPA. Compliance is based on the average removal over the year.
(7) At least 90% of samples were at or below this level. None of the samples exceeded the Action Level.

More Water Quality Information

Chloramines - a combination of chlorine and ammonia, have been used as part of the disinfection process since 1998. ***Reminder*** – Tropical fish owners need to remove chloramines from the water before use with fish. **Note** – kidney dialysis centers are fully aware of the chloramines treatment.

Sodium – No EPA standard for sodium is set; 20 ppm is considered the limit for persons on a "strict" sodium diet. The average sodium level detected by NNWW was 16 ppm, and the range was 5-66 ppm.

Hardness – No EPA standard is set. Water provided by NNWW is considered moderately soft (4-6 grains), which is equal to 70-120 ppm.

Lead - Elevated lead levels in drinking water are usually due to interior plumbing. We suggest that you use cold water for cooking and preparing baby formula. We also suggest that you allow the tap to run for 30-60 seconds before using water for drinking or cooking if it has been standing in the plumbing system for 6 hours or more. In September 2006, Fort Monroe tested water from 20 buildings identified, based on their plumbing, as having the potential to have lead. No lead was detected in 13 out of 20 buildings; the remaining 7 buildings had levels far below the action level of 15 ppb (the highest we detected was 3 ppb).

Information for Special Populations

Some people may be more vulnerable to contaminants in drinking water than the general population. Immuno-compromised persons such as persons with cancer undergoing chemotherapy, persons who have undergone organ transplants, people with HIV/AIDS or other immune system disorders, some elderly and infants can be particularly at risk from infections. These people should seek advice about drinking water from their health care providers. EPA and Centers for Disease Control (CDC) guidelines on appropriate means to lessen the risk of infection by Cryptosporidium are available from the Safe Drinking Water Hotline (800-426-4791).

For More Information

Any major decisions regarding Fort Monroe's drinking water will be discussed during periodic "Town Hall" meetings as well as during regularly scheduled Monroe Information Meetings (MIMs), and you are welcome to attend and participate. A MIM is held the second Wednesday of each month at 1300 in Building 266.

If you have questions concerning this report or wish to obtain additional information about any aspect of your drinking water, please contact Fort Monroe's Water Program Manager by calling (757) 788-5367 or through e-mail at ronald.pinkoski@us.army.mil. This report is available on the Fort Monroe DPW Environmental Division's website at: http://147.248.251.93/dpw/environmental.asp, in the Program Areas section. Additional copies can be obtained by sending a written request to the following address:

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Environmental Division
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